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## ABSTRACT

A program was developed to improve the physical fitness of 15 trainable mentally retarded students in a special school. Preliminary surveys of parents and teachers and observations of students indicated that the majority of students in the targeted group were physically unfit and exhibited poor attitudes about physical exercise. A daily walking/exercise program of 15 minutes was developed and implemented. Subjects walked for 3 days a week and exercised with an exercise record or video the other 2 days. Short and long term reinforcers based on walking mileage achieved were used to motivate the students. Evaluation indicated lowered resting heart rates in 73% of the targeted group, lowered exercise heart rate in 33% of the group, and increased distance walked in 15 minutes by 53% of the group. In addition, a survey of parents, teachers, and job coaches indicated an overall improvement in attitudes of the students toward exercise. Appendixes include the pre- and post-parental surveys with results, the parental consent letter, the results of resting and exercise heart rate tests, and distances walked. Includes 14 references.

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Improving the Personal Fitness of Secondary  
Trainable Mentally Handicapped Students  
Through Aerobic Exercise

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A Practicum Report

submitted to the Faculty of the Center for the  
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fulfillment of the requirements for the degree of Master  
of Science.

The abstract of this report may be placed in a National  
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July/1990

EC 300007

## Abstract

Improving the Personal Fitness of Secondary Trainable Mentally Handicapped Students Through Aerobic Exercise. Buchik, Nancy T., 1990: Practicum Report, Nova University, The Center for the Advancement of Education. Descriptors: Adapted Physical Education/Physical Activities/Aerobics/Physical Fitness/Heart Rate/Physical Activity Level/Special Health Problems/Cardiovascular System/Body Weight/Lifetime Sports/Dance/Moderate Mental Retardation/

The need to improve the physical fitness of secondary trainable mentally handicapped students was addressed by the implementation of a physical fitness program. Surveys and observations indicated that the majority of students in the targeted group were physically unfit and exhibited poor attitudes about physical exercise. A daily walking/exercise program was developed and implemented. Short and long term reinforcers were used to motivate the students. The results demonstrated increased fitness levels and improved attitudes toward physical exercise. It was concluded that a structured physical fitness program can provide the means by which fitness levels and attitudes

can be improved and maintained. Appendices include pre/post surveys, a parental consent form and pre-mid-post data results.

# Authorship Statement

I hereby testify that this paper and the work it reports are entirely my own. Where it has been necessary to draw from the work of others, published or unpublished, I have acknowledged such work in accordance with accepted scholarly and editorial practice. I give this testimony freely, out of respect for the scholarship of other workers in the field and in the hope that my work, presented here, will earn similar respect.

Nancy J. Buchik

Appendix J  
Nova University  
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Observer Verification Form

Verification of Practicum Activity

Dear Observer:

Practicum students in Nova's M.S. and Ed.S. programs are asked to provide external verification that the project activities reported in their final practicum documents took place as described. You have been designated an observer to fulfill this confirmation function by the student named below. On this sheet, then, please write a note attesting to your knowledge of the project activity described in the final practicum report to which this will be attached. (Note that you are not asked to evaluate or make judgments about the quality of the project.)

Practicum Title Improving the Personal Fitness of  
Secondary Trainable Mentally Handicapped  
Students Through Aerobic Exercise

Student's Name Nancy T. Buchik

Program Site Charlotte Harbor School Date 6-17-90

Observer's Name Gary Small

(Please print - - - and sign)

Observer's position Principal Phone #813-629-7663

Observer's comment on impact of the project (handwritten):

This project has made a  
definite impact upon the  
attitudes and fitness of our  
secondary trainable students.

The students have responded  
with enthusiasm to the  
program as I have overseen  
its development personally.  
Mrs. Buckle has spent  
much time and effort to  
make this a successful  
project and we are proud  
of her accomplishments.

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## CHAPTER I

### Purpose

The school in which this practicum was implemented was a center school that served profoundly handicapped and moderately handicapped students from two counties. The school district was of medium size with an enrollment of 12,000 students. A large number of students transferred into the district during the school year, indicative of rapid growth in the community and state.

The school had 71 students enrolled, ranging in ages from 3 through 22 years and encompassing grades pre-K through 12. Fifty-nine of the 71 students were identified as mentally handicapped. Of the 59 students, 53 percent received free or reduced lunches. Several donations were received each year by the school from community organizations and individuals. These donations, plus state and federal funds, allowed the school to purchase special equipment that was needed by the students or was necessary to implement students' individualized educational plans (IEP).

Each mentally handicapped student's classroom placement was based upon age, degree of mental impairment,

functioning level and social/behavioral needs as specified on the IEP. If a student's intelligence quotient (IQ) range was 35-54, the student was placed in a trainable mentally handicapped (TMH) room. A 20-34 IQ range indicated placement in a severe classroom. The profoundly mentally handicapped (PMH) class and the developmental class consisted of students with an IQ range below 20. A breakdown is given in Figure 1 for each mentally handicapped class by indicating number of students, age range, IQ range, number of teachers and number of aides.

| Classroom Title | # of students | Age Range | IQ Range | Number of Teachers | Number Aide |
|-----------------|---------------|-----------|----------|--------------------|-------------|
| Develop-mental* | 10            | 4-18      | Below 20 | 1                  | 2           |
| Severe          | 7             | 3-13      | 20-34    | 1                  | 2           |
| PMH Sec.        | 9             | 15-22     | Below 20 | 1                  | 2           |
| TMH Elem.       | 9             | 6- 9      | 35-54    | 1                  | 1           |
| TMH Inter.      | 8             | 11-13     | 35-54    | 1                  | 1           |
| TMH**Sec.       | 7             | 14-18     | 35-54    | 1                  | 1           |
| TMH**Sec.       | 9             | 17-21     | 35-54    | 1                  | 1           |

\* Medically involved

\*\*Combined classroom/team teaching

Figure 1  
Classroom Settings

Students spent their day in one of these special day school programs, receiving educational services as well as support services. The support services that were delivered individually or in a group included: physical therapy, occupational therapy, vision therapy, speech and language therapy, adaptive physical education, aquatic therapy and job/vocational training.

The school facility consisted of four large laboratories which housed seven classrooms, a vocational laboratory, a physical and occupational therapy laboratory, a commons area that served as a lunchroom and assembly area, a studio apartment, a media room and an aquatic therapy pool. Due to the rapid growth in the area, future plans for facility expansion included three additional classrooms, a kitchen/lunchroom area, a vocational shop area and a multi-purpose room.

The writer of this practicum is a teacher with a degree and certification in elementary education and mental retardation (K-12) with 11 1/2 years of teaching experience; six years at the preschool level, three years at the elementary level and 2 1/2 years in the mentally handicapped area. During implementation of this practicum, this writer was assigned to team teach with the other instructor of the secondary trainable mentally handicapped (TMH) class.

The duties of this teacher included scheduling, planning and teaching lessons. These lessons conformed to the curriculum framework goals and objectives mandated by the state in five areas. The five curriculum areas included: basic academic skills, basic personal/home living skills, basic communication skills, on-the-job training skills and basic leisure/recreation skills.

In the curriculum area of basic leisure/recreation skills, several goals and objectives were listed which this teacher was expected to teach. Some of these goals and objectives included the development and improvement of individual physical skills such as walking, jogging, running and dancing. Another goal sought to increase strength, endurance and muscle tone through participation in a physical fitness program. The writer of this practicum was able to consult with the other secondary TMH teacher and the adaptive physical education teacher to incorporate these skills into a personal fitness program for each secondary TMH student. The development of a personal fitness program would offer each student the opportunity to maintain these skills after graduation.

Personal physical fitness is a fundamental goal for everyone. In today's society, aerobic fitness receives much attention and is considered an important part of good health and general well-being. Studies show that a person

receives direct health benefits from being physically fit. Studies also indicate a direct correlation between increased physical fitness and improved work performance of retarded adults (Beasley, as cited by Halle, Silverman, and Regan, 1983).

Recent studies by Kelly, Rimmer, and Ness (1985) reveal that about half of the mildly and moderately retarded people are obese, and obesity is one indicator of physical unfitness. Bauer (1981) also states that a growing body of research indicated the low aerobic fitness of retarded persons.

Upon reviewing the goals and objectives within the curriculum framework, this teacher discussed the personal physical fitness of the secondary TMH students in this center school with the other secondary TMH teacher, the adapted physical education teacher and another teacher in the school who taught aerobic dance. It was noted that students appeared to tire easily during physical education class and while walking to the grocery store. The job performances of some of the students seemed adversely affected by low energy levels. These casual observations caused the writer to initiate a structured observation of the physical fitness of these students.

The writer conducted a structured observation over a period of four weeks and noted several behaviors indicating physical unfitness. Several students exhibited slow recovery after exercise by immediately sitting in chairs and not wanting to stand. Some students walked slowly and could not stay with the group during short trips (eight tenths of a mile) to the store. A low energy level was indicated by students who did not want to participate in walking activities because they stated they were too tired. The negative attitude of some students toward any type of physical exertion also indicated poor physical fitness. These students stated that they just didn't feel like walking to the store, doing exercises or working on the job site. The job trainers indicated a problem with some students wanting to sit down on the job instead of doing their work.

These observations and the fact that height/weight charts stated that 60 percent of the targeted students were overweight as indicated in Table 1, led the writer to conduct a parental survey (Parental Survey I, Appendix A:1). The results of the survey (Parental Survey I, Results, Appendix A:2) yielded that 83 percent did some

form of exercise such as walking, dancing or riding a bicycle for 15 minutes per day for two or less days per week. Only 16 percent exercised 15 minutes per day for three to six days per week. According to physical fitness experts, a minimum of three days per week of walking, dancing, jogging or riding a bicycle is considered adequate for developing cardiovascular fitness. The results indicated that 58 percent of the targeted students watch television for three or more hours per day which would contribute to their sedentary lifestyle. During television viewing, 41 percent ate snacks. While the survey of the parents showed that only 16 percent received adequate exercise, 75 percent, however, stated that their child did, in fact, show an interest in physical activities. Fifty-eight percent of the parents did not feel that their child's physical fitness was adequate, and 100 percent stated that they would like to see an improvement. The need to improve student physical fitness by means of a structured personal fitness program had been a pervasive problem. This was confirmed by the results of the parental survey, discussions with other teachers and observations by the writer.

Table 1  
A Comparison of Individual Student's Heights  
and Weights: An Indication of Obesity

| Student # | Height (in.) | Weight (lb) | Overweight |
|-----------|--------------|-------------|------------|
| 1         | 65           | 137         | *          |
| 2         | 63           | 164         | *          |
| 3         | 62 1/4       | 130         |            |
| 4         | 64 1/2       | 177         | *          |
| 5         | 55 1/2       | 92          |            |
| 6         | 61           | 91          |            |
| 7         | 57           | 145         | *          |
| 8         | 75           | 245         | *          |
| 9         | 52 1/2       | 70          |            |
| 10        | 56           | 110         | *          |
| 11        | 53 3/4       | 143         | *          |
| 12        | 63 1/4       | 140         | *          |
| 13        | 59           | 97          |            |
| 14        | 63           | 136         | *          |
| 15        | 62           | 112         |            |

\*Indicates obesity

Concluding that the majority of the students in the secondary TMH classes were physically unfit, the writer then examined possible causes for this problem. Over a period of years our nation's populace had become sedentary gluttons. The recent trend toward better personal fitness had not been viewed as being important for the mentally handicapped. Surveys and personal observation indicated that little time had been set aside in school and the home

for the development of a personal fitness program for the mentally handicapped. Instead, the time had been spent trying to solve other problems that the mentally handicapped person faced, such as: performing functional skills in the home, school and community; acquiring on-the-job training; increasing communication skills and planning for the future. Because these were all pertinent problems that warranted solutions, personal fitness had been viewed as a less important problem and therefore, neglected.

In addition, many mentally handicapped people had medical problems that decreased their activity level. Some were on medications that also lowered their activity levels. Rather than decreasing the activity level to an extremely low level, these medical problems should have served as an impetus to develop a fitness program within a person's physical limitations.

This practicum addressed the need to improve the physical fitness of secondary TMH students by developing a personal fitness program to be implemented in school in conjunction with parental feedback. The physical fitness level of each participating student would improve and the proposed strategy would allow the students to maintain a

program of physical fitness immediately as well as beyond graduation. This project intended to develop and instill skills in each student that would be utilized for a lifetime and result in long term physical fitness.

This writer hoped to affect change in both student performance and attitude regarding improved physical fitness. A post-parental survey (Parental Survey II, Appendix B:1) was distributed to parents to be completed at the end of the implementation period. The results of this survey, along with teacher observation and measurable outcome objectives, indicated the degree of success of the specialized physical fitness program that was developed and implemented. The following outcome objectives applied to this practicum:

1. After 10 weeks of a specialized physical fitness program, at least 50 percent of the students in the secondary TMH classes will have increased their physical fitness by the lowering of their resting heart rate as measured by the difference between the resting pulse rates before and after the implementation of this project.
2. After 10 weeks of a specialized physical fitness program, at least 50 percent of the students in

the secondary TMH classes will have increased their physical fitness by the lowering of their exercise heart rate as measured by the difference between the exercise pulse rates before and after the implementation of this project.

3. After 10 weeks of a specialized physical fitness program, at least 50 percent of the students in the secondary TMH classes will have improved their fitness level by increasing distance walked in 15 minutes as measured by the difference between the distance walked before and after the implementation of this project.

The following attitudinal objective applied to this practicum:

1. After students in the secondary TMH classes have used the specialized physical fitness program for 10 weeks, at least 75 percent of the parents who respond to the post-parental survey (Parental Survey II, Appendix B:1) will have indicated improved attitudes by the students toward exercise, as evidenced by parent observations of the students' increased desire to participate in physical activity at home.

## Chapter II

### Research and Solution Strategy

The term physical fitness can mean many things to different people. In order to better understand the goals of this project, this writer defined the term and examined the various aspects of physical fitness.

According to Williams, et al. (1986), a person is physically fit when that person is "able to carry out daily tasks without undue fatigue, is able to handle emergency situations, and possesses sufficient energy to enjoy leisure time pursuits." Williams, et al. (1986) state that there are five components to health related physical fitness: cardiovascular fitness; flexibility; muscular strength; muscular endurance; and body composition. Williams, et al. (1986) believe that cardiovascular fitness is the most important of the five components. Cardiovascular fitness is "the body's ability to continuously provide oxygen to the muscles as they perform work over an extended period of time," (Williams, et al. 1986).

The majority of studies stated that aerobic exercise is the best type of exercise for achieving cardiovascular

fitness. Aerobic exercise is any activity that forces the heart, blood and blood vessels to transport large amounts of oxygen to muscle cells, process the oxygen in those cells and carry off the resultant waste products for a sustained period of time (Bauer, 1981). Some suggested aerobic activities include square dancing, ribbon dancing, aerobic dancing, bicycling, rope jumping, roller skating, jogging and long distance running (Seeman and DePauw, 1982).

The benefits of physical fitness are many. Improvements in appearance, muscle strength, endurance, physical performance, school and job work, energy levels, body image, health, stress management and life expectancy are some of these benefits (Williams, et al. 1986). With so many benefits, why are the mentally handicapped so physically unfit? Cratty (1989) suggests the following reasons:

1. Opportunities are fewer for play with peers due to absence of or rejection by peers;
2. Deficiencies in the cardiorespiratory system create lowered capacities for vigorous exercise;
3. Problems exist with the neuromotor capabilities of the mentally handicapped;

4. Helplessness is learned from overprotective parents;
5. Predispositions toward unfitness exist due to genetic composition;
6. Nutrition is poor;
7. Aversions toward perspiration cause the mentally handicapped to avoid exercise.

Our society has undergone dramatic change in its view of the physical fitness of the mentally handicapped. The mentally handicapped have maintained a sedentary lifestyle due to their isolation from the mainstream of life. However, due to recent legislative actions over the last two decades, deinstitutionalization and normalization have brought many mentally handicapped individuals into the mainstream of life. Our society is gradually increasing its level of awareness of the varied needs of the mentally handicapped, including the area of physical fitness (Fernhall, et al., 1989). Research, litigation, professional organizations and legislation have all been important forces in bringing about change in the increased availability of fitness programs for the mentally handicapped (Sherrill, 1986).

The writer examined several studies to determine which type of exercise could be implemented in the classroom to improve the physical fitness levels of mentally handicapped adolescents. In the first study, Fernhall, et,al. (1989) were able to establish that the cardiovascular fitness levels for adolescents and adults with mental retardation were lower than the levels for subjects without mental retardation. They also determined that carefully screened Down Syndrome subjects can safely participate in vigorous exercise programs. This study used a walking treadmill protocol and was very technical in nature. Data collecting devices such as metabolic carts, electrocardiograms and air collection balloons were used in the study.

The second study regarding the physical fitness of retarded children by Halle, Silverman and Regan (1983) researched the effects of a data-based exercise program. The subjects, nine educable mentally handicapped (EMH) children with a mean age of 8 1/2 years, were placed in an eight step fitness program over a six month period. The program included 15 minute walk/run sessions daily that resulted in increased behavioral performance and attitudinal improvement. Various motivational systems were also implemented concurrently such as stickers, posters, reward parties and bulletin boards.

In the next study researchers examined the effects of a 10 week dance program upon EMH adolescents (Crain, McLaughlin and Eisenhart, 1983). Thirteen EMH middle school students, ages 13-15, were grouped in a self-contained classroom. The subjects participated in 30 dance sessions lasting 30 minutes each. Six of the 13 subjects showed improvement in physical behavior; however, these behaviors showed improved dance skills. None recorded higher levels of cardiovascular fitness.

The writer also evaluated some physical fitness programs suggested by others. Bauer (1981) listed several points to be considered when forming such a program:

1. Adapt exercise to each student's exercise tolerance level;
2. Increase the intensity of work performance in a given unit of time;
3. Provide for progression in amounts of exercise;
4. Keep charts and records on physical development;
5. Plan a program which is highly motivational.

Ambrogio (1989), a teacher of the mentally handicapped and a certified aerobic dance instructor, offered these suggestions for forming an effective physical fitness program. The sessions should be daily, if possible, and last a minimum of 15 minutes. Desirable activities would

include walking with high marching steps and swinging arms, dancing with over-the-head hand clapping and exercising with the Richard Simmons' videotape designed for the handicapped. Ambrogio stressed the importance of warm up and cool down period as well as proper breathing techniques.

Hill (1989), an associate of a local fitness center, outlined a program designed to utilize exercise machines. These machines include stationary bikes, treadmills, rowing machines, nordic tracks, stairmasters and upper body odometers. These machines could be used in the home or at the center for a fee of a 32 dollars per month.

The final examination of physical fitness programs for the mentally handicapped by this writer included a review of the Richard Simmons' (1986) videotape, Reach for Fitness. In this tape, Simmons explains the importance of good nutrition in a fitness program. Various aerobic exercises are done to music by Simmons and several handicapped people. Simmons offers encouragement and motivation to the viewer in easy to understand terms.

How did these different studies and program outlines relate to the targeted group in this practicum? While the information gathered from these studies and programs was helpful in the formation of the solution, no one study or program was duplicated for this project.

While the Fernhall, et al. (1989) study offered useful information concerning the Down Syndrome subject, the data collection procedure was too technical for use in this practicum. Halle, Silverman, and Regan's (1983) study provided good methods for data collection and focused upon the importance of motivation. Due to the lower ages and higher intelligence levels of the subjects in that study, the motivational system would need to be adjusted for this targeted group. Ideas were obtained from the Crain, McLaughlin, and Eisenhart (1983) study that were useful in forming the dance segment; however, the proposed program needed to include a wider range of exercise activities since cardiovascular fitness was unaffected. Hill's (1989) exercise machine program was effective, but too costly to implement in this project. Simmons' (1986) videotaped exercise program offered a useful exercise routine, but the writer needed to add other methods of aerobic exercise to prevent boredom. The physical fitness program outlined by Bauer (1981) listed several useful suggestions; however, the suggestions were general and not specifically applicable to the target population. The writer needed to develop a solution that contained more detailed activities. The program suggested by Ambrogio (1989) offered the most

useful strategies that the writer examined. Although this program was beneficial, the writer needed to add an effective data collection procedure as well as a motivational system.

Therefore, after reviewing the preceding studies, it was logical for the writer to implement an alternative solution that would incorporate certain aspects of the studies. The best solution should implement a physical fitness program that would improve the cardiovascular levels of the targeted group. The strategy should improve students' skills and attitudes that, in turn, would lead to a lifetime maintenance of optimal fitness levels. The development of these skills and positive attitudes would be especially important for students whose physical and mental abilities have dictated a sedentary lifestyle.

Since studies by Julian Stein have shown that decreased fitness in the mentally handicapped is caused more by limited opportunities of instruction and participation than from the effect of the retardation, the solution strategy involved daily aerobic activities of at least 15 minutes in length. The solution strategy incorporated activities such as walking, various types of dancing, and low impact aerobic exercises. These

activities were adjusted to meet individual needs, so the effects of the activities would not be hampered by lower levels of balance, coordination and fitness.

With the support of parents, administration, the other TMH teacher and the adaptive physical education teacher, the solution strategy sought to maintain a high level of interest in physical fitness among the targeted group on a daily basis. Cooperation in scheduling changes allowed the students the opportunity to exercise daily for 15 minutes. Age appropriate motivational systems were incorporated, including classroom posters, charts, bulletin boards, rewards, parties and social dances. A field trip to the local fitness center to gain experience using exercise machines provided an added incentive. A weekly data collection system revealed improvements in fitness levels and acted as an incentive for the students' continued improvement. If no improvement occurred, the data collection system would serve as a tool to indicate needed mid-course changes.

Solution strategy costs were minimal with little need for additional materials and equipment, since equipment was already in the classroom or school. Only materials to be used as rewards were purchased.

Because the following observations by Cratty (1989) served as a guide, the solution strategy proved to be a rewarding experience for the writer and the target group:

1. The mentally handicapped have little or no concept of why they should pursue some physical activity; therefore, it is important to have immediate rewards.
2. It is best to not overload the less mature, unmotivated with stressful, uncomfortable, or painful experiences.
3. Student's feelings about the teacher may influence the amount of effort expended.
4. The emotional maturity markedly influences the scores of fitness.
5. The teacher needs to be aware of problems that stem from neurological deficits.

## CHAPTER III

### Methodology

The writer prepared, organized, distributed and monitored necessary materials and equipment for the implementation of this practicum. The implementation was conducted over a 12 week period.

The first week a physical fitness program was established that was based upon previous research. The program allowed for daily aerobic exercise that was 15 minutes in length. The type of exercise consisted of walking three days a week. The other two days were spent exercising with an exercise record, an exercise video or a dance record. The different types of exercise allowed for variety and decreased the possibility of boredom.

After reviewing this plan with the principal, the other secondary TMH teacher and the adaptive physical education instructor to eliminate possible scheduling conflicts, the writer sent home a parental consent letter (Parental Consent Letter, Appendix C). The letter explained the program and sought parental consent for student participation. The school nurse read the health records of each student to obtain any information that

would exclude a student from participation. The parental consent form and the health record review minimized liability. The writer reviewed the IEP's of each student to ensure that fitness goals were included in each plan. No IEP revisions were necessary.

An incentive program was established to reward students for attaining individual and group goals. Students were individually rewarded for every mile completed by posting the achievement on the bulletin board and by selecting an item from the "One Mile Box". Each student who walked 7, 14, and 21 miles respectively, was awarded a different colored tee shirt for each level. After a student earned a level tee shirt, this writer decorated the shirt with a painted design, the student's name and the mile level. The student was then awarded the shirt in front of the entire group and applauded by all. The principal was consulted and funds obtained to purchase these individual rewards during the first week. Actual purchases were made several times during the implementation period to eliminate overbuying. As a group, the students received rewards based upon total miles walked by the group. The total was tallied at the end of each week by the writer and recorded on the bulletin board. For

every 100 miles an article of clothing was added to the silhouette of a runner on the bulletin board and a field trip was planned. Earned field trips included a trip to the local fitness center where students were able to use the exercise equipment. On another trip, students went to the high school for a "beach party" with friends from a transitional class. The party included games and healthy snacks. The final trip after walking over 300 miles was to the local park for an all day picnic. The park had a fitness trail that the group completed. On the way back to school the group was treated to yogurt at an ice cream shop. The writer consulted with the principal during the first week to obtain approval for the trips. Tentative bus transportation was set up with final dates and times being arranged a week in advance of each trip.

The writer gathered necessary equipment the first week. The equipment included the Richard Simmons' exercise videotape, VCR and monitor, camrecorder, videotape, exercise records, dance music, stop watch, whistle and clipboards. The writer consulted with the other TMH teacher, the adaptive physical education teacher and the principal and determined that the homeroom laboratory would be large enough for group participation in dance and

exercise activities. A walking course of .1 mile was marked outside in a semi-shaded area. Charts, posters, and bulletin board materials were made and organized for data collection.

Next the writer discussed the entire project in detail with the other TMH teacher and the two teacher aides. Data collection procedures were explained since all adults in the secondary TMH program were involved. Finally, the program was introduced to the targeted group and the importance of physical fitness was discussed. The writer described the activities and incentive program. Before starting the exercise program, baseline data was collected to serve as the pre-assessment model. Individual resting and active heart rates were taken for 10 seconds and multiplied by six to find the rates per minute. The distance walked in 15 minutes was recorded in miles. This pre-assessment data along with mid-course and post - assessment data can be found in Table 2.

Table 2

A Comparison of Individuals' Pre-Mid- and Post Data for Resting Heart Rates, Active Heart Rates and Distances Walked

| Student # | Resting Rates/Min |     |      | Active Rates/Min |     |      | Distance-Miles |     |      |
|-----------|-------------------|-----|------|------------------|-----|------|----------------|-----|------|
|           | Pre               | Mid | Post | Pre              | Mid | Post | Pre            | Mid | Post |
| 1         | 99                | 84  | 78   | 96               | 126 | 132  | 1.1            | .9  | 1.1  |
| 2         | 83                | 84  | 66   | 120              | 126 | 132  | .5             | .8  | .8   |
| 3         | 86                | 72  | 72   | 138              | 114 | 132  | .7             | .7  | .9   |
| 4         | 84                | 84  | 72   | 162              | 144 | 162  | .8             | .9  | .9   |
| 5         | 75                | 72  | 60   | 156              | 108 | 132  | .7             | .9  | .8   |
| 6         | 72                | 84  | 78   | 120              | 120 | 108  | .7             | .6  | .5   |
| 7         | 71                | 60  | 60   | 96               | 120 | 156  | 1.2            | 1.2 | 1.0  |
| 8         | 77                | 78  | 78   | 102              | 102 | 126  | .7             | .7  | .3   |
| 9         | 72                | 72  | 72   | 120              | 114 | 126  | .7             | .9  | .9   |
| 10        | 78                | 48  | 60   | 120              | 90  | 90   | 1.2            | 1.0 | 1.0  |
| 11        | 96                | 78  | 78   | 108              | 132 | 144  | .7             | .7  | .7   |
| 12        | 96                | 114 | 96   | 114              | 144 | 168  | .2             | .3  | .5   |
| 13        | 88                | 84  | 66   | 96               | 114 | 102  | .8             | .7  | .9   |
| 14        | 74                | 72  | 72   | 120              | 126 | 114  | .8             | .9  | 1.0  |
| 15        | 83                | 78  | 78   | 90               | 120 | 108  | .8             | .5  | .4   |

The actual physical exercise began and continued on a daily basis through the next 10 weeks. The program consisted of walking three days a week and doing various aerobic activities such as exercising and dancing the remaining two days. The activity period lasted a minimum of 15 minutes. Individual distances walked were recorded on the three walking days per week. Resting and active heart rates were recorded one time a week per student.

Individual and group rewards were awarded as goals were reached and the results were displayed on posters and a bulletin board. The targeted group was videotaped while exercising at the beginning and end of the implementation period, so improvement in fitness skills could be observed by the group.

At the mid-point of the implementation period the writer evaluated the progress of the program to determine if changes were needed for the final five weeks of exercise. A few minor adjustments were made due to scheduling conflicts. Some of these conflicts such as 4-H and Boy Scout meetings, a work day, a holiday and a school social were expected. Others such as a two day move to another room, an assembly and bad weather were not expected. To accomodate these schedule changes some days the group walked instead of exercising indoors. When the weather was bad, the group exercised instead of walking. The actual implementation period was extended by two days to allow for the make-up of missed walking days. The writer reviewed the data at mid-course (Table 2) and discovered that goals were being reached or nearly reached for all objectives but one. Sixty percent of the targeted group had shown an improvement in resting heart rates. Sixty-six percent had maintained or increased distance

walked in 15 minutes. Most of the group demonstrated a high level of interest and appeared eager to walk. The active heart rate data was the only area that did not show the expected level of improvement. The writer decided to maintain the implementation as it had been proposed after reviewing all of the mid-course data.

During the final twelfth week of the implementation period the writer sent home the post-parental survey (Parental Survey II, Appendix B:1). The collected data on heart rates and distance totals were compiled, evaluated and interpreted to determine if the outcome objectives had been reached. The writer then interviewed the other secondary TMH teacher, the physical education teacher and the job trainers to see if improved fitness of the targeted group had been observed. The success of the personal fitness program, as measured by the outcome objectives and the observations of teachers and job trainers, was then examined.

## CHAPTER IV

### Results

The evaluation of the success of this plan was determined by comparing the success criteria, listed in the outcome objectives, with the results that were obtained at the end of implementation. Success was measured by the pre/post measurements of these objectives.

The first objective was to improve physical fitness by lowering the resting heart rates of at least 50 percent of the targeted group. This objective was met as indicated by the pre/post results of the students' resting heart rates (Pre-Mid-Post Results, Resting Heart Rates, Appendix D). These results demonstrated a lowering of heart rates in 73 percent of the targeted group. The drop in rates was substantial with an average drop of fourteen beats per minute in the targeted group.

The improvement of physical fitness by the lowering of the exercise heart rate in at least 50 percent of the targeted group was the next objective. The pre/post results (Pre-Mid-Post Results, Active Heart Rates, Appendix E) indicated that 33 percent of the targeted group demonstrated a drop in their exercise heart rate. There

are several possibilities why this objective was not met. Errors in measurement could have been made since four different adults were taking exercise pulse rates. Inaccurate measurement by just one or two beats of these accelerated rates would have caused large variances in the exercise rates. Students were to march in place following the 15 minute exercise period until someone took their pulse rates. Sometimes students forgot to do this, causing rates to vary. Students would also walk at different speeds on different days, depending upon the heat and their moods. These changes in speed would also create a large range in the exercise rates. As a result of these factors that could cause errors in measurement, the writer concluded that the monitoring of exercise heart rates in this setting was not an accurate measurement for increased physical fitness. However, for safety reasons, the writer chose to measure exercise heart rates so levels could be monitored and extreme physical stress prevented.

The third objective was to improve physical fitness by increasing the distance walked in 15 minutes of at least 50 percent of the targeted group. The pre/post results (Pre-Mid-Post Results, Distances Walked, Appendix F) indicated that this goal was met. Fifty-three percent of the targeted group demonstrated an increase in the distance

walked during the 15 minute exercise period. Additionally, 67 percent of the targeted group reached personal goals by walking 21 or more miles over the 10 week implementation period. These students received all three major level rewards that were awarded at 7, 14 and 21 miles.

The final objective focused upon attitudinal change. If at least 75 percent of the parents who responded to the post-parental survey (Parental Survey II, Appendix B:1) indicated improved attitudes by the students toward exercise, this goal would be met. The results of the post-parental survey (Parental Survey II, Results, Appendix B:2) indicated that 73 percent of the responding parents noted an increased interest by the targeted group in physical type activities over the 10 week implementation period. Although this question on the survey fell two percentage points below the anticipated goal, the writer concluded that major attitudinal changes about exercise were achieved. The results of other questions on the post-parental survey (Parental Survey II, Results, Appendix B:2) helped support this conclusion. In the post survey parents indicated that 46 percent of the targeted group exercised at home three or more days each week. Compared with the 16 percent in the pre-parental survey (Parental Survey I, Results, A:2) who exercised three or more days,

a 30 percent improvement in the number of days students exercised at home was indicated. The attitudes of parents toward the targeted group's improved physical fitness also yielded positive results. Eighty-two percent of the parents who responded believed that their child's physical fitness had improved over the 10 week period and 100 percent wanted the program to continue.

These results and the observations of the teachers and job coaches indicated an overall improvement in the physical fitness and attitudes of the targeted group. Fewer students expressed displeasure about activities that required physical exertion. Students did not appear to be as tired after physical education class or after walking to the grocery and job site. Job trainers reported better attitudes by the students toward their jobs. Students even asked if the group could walk or exercise after the implementation period was completed. These changed attitudes and the increased energy levels were positive outcomes of the physical fitness program. The writer concluded that some form of a structured physical fitness program should be continued so physical fitness levels could be maintained and even improved.

## CHAPTER V

### Recommendations

The physical fitness program used in this practicum was designed to be a starting point in the improvement of physical fitness skills of the targeted students and their attitudes toward physical activity. After examining the results of the program, this writer discussed the benefits of continued use of the program or a similar program with the principal, the adaptive physical education teacher and the other secondary TMH teacher. It was recommended that a classroom fitness program be included in the students' yearly IEP's. The specific program to be used in the secondary TMH classroom would be expanded to include increased time spent in physical activity. Other aerobic activities would be added for variation and to prevent boredom. The writer recommended that a training packet and videotape be developed and made available to parents to help them maintain a fitness program with their child at home during the school years and after graduation. A follow-up survey of graduates would demonstrate whether the program was successful after the students left the school setting.

This program could also be used effectively with younger TMH students, profoundly mentally handicapped students, transitional students in the mainstream and other handicapped students throughout the district. As approved by the director of the exceptional student education program and on-site administrators, copies of this program will be distributed to teachers of the physically and mentally handicapped throughout the district. Modifications will be made by the teachers so the program will fulfill the needs of each group of students.

This program and variations of it will continue to be used by the writer. Data will be collected at various times to assure that the goal of improving physical fitness in physically and mentally handicapped students is being achieved.

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## Appendix

37

45

**Appendix A:1**  
**Parental Survey I (Pre)**

38

46

Appendix A:1  
Parental Survey 1 (Pre)

It would be a great help to us if you would complete this survey and return it to school. Thanks.

1. On the average, how often does your child exercise\* at home during a week?

\*Exercise - doing some type of physical activity such as walking, riding a bike, dancing, etc. for at least 15 minutes.

- \_\_\_\_\_ None  
\_\_\_\_\_ 1 or 2 days  
\_\_\_\_\_ 3 or more days  
\_\_\_\_\_ Everyday

2. On the average, how many hours of television does your child watch in a day?

- \_\_\_\_\_ Less than 1 hour  
\_\_\_\_\_ 1 hour  
\_\_\_\_\_ 2 hours  
\_\_\_\_\_ 3 hours or more.

3. Does your child usually eat a snack while watching television?

\_\_\_\_\_yes \_\_\_\_\_no

4. Does your child show an interest in doing physical type activities (such as going for a walk, playing ball, exercising, dancing)?

\_\_\_\_\_yes \_\_\_\_\_no

5. Do you feel that your child's physical fitness is adequate?

\_\_\_\_\_yes \_\_\_\_\_no

6. Would you like to see an improvement in your child's physical fitness?

\_\_\_\_\_yes \_\_\_\_\_no

**Appendix A:2**  
**Parental Survey I (Pre)**  
**Results**

## Appendix A:2

## \*Parental Survey I (Pre)

## Results

It would be a great help to us if you would complete this survey and return it to school. Thanks.

1. On the average, how often does your child exercise\* at home during a week?

\*Exercise - doing some type of physical activity such as walking, riding a bike, dancing, etc. for at least 15 minutes.

4 None

6 1 or 2 days

2 3 or more days

0 Everyday

2. On the average, how many hours of television does your child watch in a day?

0 Less than 1 hour

1 1 hour

4 2 hours

7 3 hours or more.

3. Does your child usually eat a snack while watching television?

5 yes

7 no

4. Does your child show an interest in doing physical type activities (such as going for a walk, playing ball, exercising, dancing)?

9 yes

3 no

\*\*

5. Do you feel that your child's physical fitness is adequate?

4 yes

7 no

6. Would you like to see an improvement in your child's physical fitness?

12 yes

0 no

\*80 percent response

\*\*No response 1

**Appendix B:1**  
**Parental Survey II (Post)**

## Appendix B:1

## Parental Survey II (Post)

As a follow up to our physical fitness program, it would be a great help to us if you would complete this survey and return it to school. Thanks.

1. On the average, how often does your child exercise\* at home during a week?

\*Exercise - doing some type of physical activity such as walking, riding a bike, dancing, etc. for at least 15 minutes.

- ☐ None  
☐ 1 or 2 days  
☐ 3 or more days  
☐ Everyday

2. On the average, how many hours of television does your child watch in a day?

- ☐ Less than 1 hour  
☐ 1 hour  
☐ 2 hours  
☐ 3 hours or more.

3. Has your child shown an increased interest in doing physical type activities (walking, exercising, dancing, playing ball) over the last 10 weeks?

☐ yes ☐ no

4. Do you feel that your child's physical fitness has improved over the last 10 weeks (does your child seem less tired, have more energy)?

☐ yes ☐ no

5. Would you like to see the physical fitness program continue?

☐ yes ☐ no

**Appendix B:2**  
**Parental Survey II (Post)**  
**Results**

## Appendix B:2

## \*Parental Survey II (Post)

## Results

As a follow up to our physical fitness program, it would be a great help to us if you would complete this survey and return it to school. Thanks.

1. On the average, how often does your child exercise\* at home during a week?

\*Exercise - doing some type of physical activity such as walking, riding a bike, dancing, etc. for at least 15 minutes.

3 None  
3 1 or 2 days  
4 3 or more days  
1 Everyday

2. On the average, how many hours of television does your child watch in a day?

1 Less than 1 hour  
0 1 hour  
4 2 hours  
6 3 hours or more.

3. Has your child shown an increased interest in doing physical type activities (walking, exercising, dancing, playing ball) over the last 10 weeks?

8 yes 3 no

4. Do you feel that your child's physical fitness has improved over the last 10 weeks (does your child seem less tired, have more energy)?

9 yes 2 no

5. Would you like to see the physical fitness program continue?

11 yes 0 no

\*73 percent response

**Appendix C**  
**Parental Consent Letter**

## Appendix C

## Parental Consent Letter

Dear Parents,

We are trying to establish a physical fitness program for the secondary TMH classes. We'd like the program to be one that your child will enjoy and want to maintain beyond school. The students have been walking in physical education class, but we would like to add to that by including a daily 15-30 minute activity. The activities will start at a low level and gradually increase. For example, if we walk, our distance will start at 1/4 mile and gradually increase to a reasonable level for your child over a period of time. The pace will also start slowly. Other activities will include square dancing, aerobic exercises (Richard Simmons has an excellent video for the handicapped), obstacle courses, and relays.

This program will not be any more strenuous than what the students are currently doing in physical education class. Heart rates will be monitored throughout the weeks to measure any improvements.

Your cooperation is greatly appreciated. If you have any questions, please feel free to give me a call at school. Thank you.

Sincerely,

---

\_\_\_\_ Yes, my child may participate in the personal fitness program.

\_\_\_\_ No, my child may not participate in the personal fitness program.

---

Parent Signature

Please list any medical limitations:

**Appendix D**  
**Pre-Mid-Post Results**  
**Resting Heart Rates**

Appendix D  
Pre-Mid-Post Results  
\*Resting Heart Rates

| Student # | Pre | Mid | Post | **Pre/Post Differences |
|-----------|-----|-----|------|------------------------|
| 1         | 99  | 84  | 78   | -21                    |
| 2         | 83  | 84  | 66   | -17                    |
| 3         | 86  | 72  | 72   | -14                    |
| 4         | 84  | 84  | 72   | -12                    |
| 5         | 75  | 72  | 60   | -15                    |
| 6         | 72  | 84  | 78   | + 6                    |
| 7         | 71  | 60  | 60   | -11                    |
| 8         | 77  | 78  | 78   | + 1                    |
| 9         | 72  | 72  | 72   | 0                      |
| 10        | 78  | 48  | 60   | -18                    |
| 11        | 96  | 78  | 78   | -18                    |
| 12        | 96  | 114 | 96   | 0                      |
| 13        | 88  | 84  | 66   | -22                    |
| 14        | 74  | 72  | 72   | - 2                    |
| 15        | 83  | 78  | 78   | - 5                    |

\*Beats per minute

\*\*Decrease (-)

Increase (+)

Same (0)

**Appendix E**  
**Pre-Mid-Post Results**  
**Active Heart Rates**

50

58

Appendix E  
Pre-Mid-Post Results  
\*Active Heart Rates

| Student # | Pre | Mid | Post | **Pre/Post Differences |
|-----------|-----|-----|------|------------------------|
| 1         | 96  | 126 | 132  | +36                    |
| 2         | 120 | 126 | 132  | +12                    |
| 3         | 138 | 114 | 132  | - 6                    |
| 4         | 162 | 144 | 162  | 0                      |
| 5         | 156 | 108 | 132  | -24                    |
| 6         | 120 | 120 | 108  | -12                    |
| 7         | 96  | 120 | 156  | +60                    |
| 8         | 102 | 102 | 126  | +24                    |
| 9         | 120 | 114 | 126  | + 6                    |
| 10        | 120 | 90  | 90   | -30                    |
| 11        | 108 | 132 | 144  | +36                    |
| 12        | 114 | 144 | 168  | +54                    |
| 13        | 96  | 114 | 102  | + 6                    |
| 14        | 120 | 126 | 114  | - 6                    |
| 15        | 90  | 120 | 108  | +18                    |

\*Beats per minute

\*\*Decrease (-)

Increase (+)

Same (0)

Appendix F  
Pre-Mid-Post Results  
Distances Walked

Appendix F  
Pre-Mid-Post Results

\*Distances Walked

| Student # | Pre | Mid | Post | **Pre/Post Differences |
|-----------|-----|-----|------|------------------------|
| 1         | 1.1 | .9  | 1.1  | 0                      |
| 2         | .5  | .8  | .8   | +.3                    |
| 3         | .7  | .7  | .9   | +.2                    |
| 4         | .8  | .9  | .9   | +.1                    |
| 5         | .7  | .9  | .8   | +.1                    |
| 6         | .7  | .6  | .5   | -.2                    |
| 7         | 1.2 | 1.2 | 1.0  | -.2                    |
| 8         | .7  | .7  | .3   | -.4                    |
| 9         | .7  | .9  | .9   | +.2                    |
| 10        | 1.2 | 1.0 | 1.0  | -.2                    |
| 11        | .7  | .7  | .7   | 0                      |
| 12        | .4  | .3  | .5   | +.3                    |
| 13        | .8  | .7  | .9   | +.1                    |
| 14        | .8  | .9  | 1.0  | +.2                    |
| 15        | .8  | .5  | .4   | -.4                    |

\*Distance in miles

\*\*Decrease (-)

Increase (+)

Same (0)